REMARKS/ARGUMENTS

Preliminary Matter

In reviewing the Patent Application Publication (US 2003/0054759), applicant noted that the entire specification was not published. More particularly, only Appendix A was published. A review of PAIR shows that the proper specification is in the USPTO system, and that the problem is exemplified solely in the patent publication.

Status of the Claims

Claims 1-16 remain in this application. Claims 1, 4, and 11 have been amended to add additional features of the invention (see page 5, lines 21-31, and page 9, lines 17-30, of the specification).

Claims 1-4 and 11-16 Are Not Anticipated by Jolley et al (US 6,323,803)

The present invention performs integrity monitoring of a one ranging source type using another ranging source type. In this case, the two ranging source types are a Global Positioning System (GPS) 24 and a land-based wireless communications network 26. Thus, ranging information from the wireless network 26 may be used to monitor the integrity of ranging information obtained from the GPS 24 and ranging information from the GPS 24 may be used to monitor the integrity of ranging information obtained from the wireless network 26.

For example, the wireless terminal 22 may select ranging measurements extracted from GPS signals 30-*j* and from base station signals 36-*p* to perform integrity monitoring.

This concept is exemplified in claim 1, as amended, which provides:

> A method of performing integrity monitoring comprising the steps of:
>
> selecting at least one ranging measurement associated with a first ranging source belonging to a first ranging source type;
>
> selecting at least one ranging measurement associated with a second ranging source belonging to a second ranging source type; and
>
> performing failure detection using the selected ranging measurements associated with the first and second ranging sources to

determine whether either of the first or second ranging sources failed, *wherein at least one ranging source type comprises a satellite system and at least one ranging source type comprises a land-based wireless communication network.*

The present invention differs in a significant way from the method disclosed in Jolley et al., which provides for incremental broadcast of GPS navigation data in a wireless network.

As disclosed in Jolley, the GPS-MS 20 comprises a typical mobile station having a cellular transceiver for sending and receiving radio signals between it self and the wireless communication network system 10. The GPS-MS 20 also includes an integrated GPS receiver for receiving composite signals from visible GPS satellites, such as the satellite 24. The GPS-MS 20 is programmed to make GPS positioning measurements using the composite signals and navigation assistance data received from the wireless communication network system 10.

The types of GPS assistance data include (a) orbital modeling information for visible satellites and (b) DGPS corrections. The orbital modeling information consists of navigation information including satellite ephemeris and clock corrections, or almanac data. This data is relatively large, and may be on the order of approximately 5000 bits for ten satellites. Providing the navigation information from the network system 10 means that the GPS-MS 20 does not have to demodulate it from the respective GPS satellite signals, such as the signal 32 in FIG. 1. The DGPS corrections are used to mitigate atmospheric, orbital, and Selective Availability (SA) errors in the ranges to their respective satellites that are measured by the GPS-MS 20 and used for position computation. This data is relatively small, but requires frequent updates, on the order of 30 seconds or less, due to the time-varying nature of the SA degradation. The DGPS corrections improve the horizontal position accuracy of the GPS-MS 20 from 50 m (RMS) to 5-10 m (RMS), which is important for applications such as personal navigation.

The broadcast capacity of each cell or BTS is relatively limited. Therefore, Jolley suggests that it is not practical to deliver the larger navigation assistance over a broadcast bearer. Thus, the wireless communication network system 10 utilizes several procedures for providing GPS assistance information to the GPS-MS 20. The first procedure is that when the GPS-MS 20 powers on, it uses a dedicated point-to-point channel 28 to request and receive both orbital modeling information

and DGPS correction assistance from the network 10. This dedicated channel may be established specifically for this purpose, or a logical channel established for another purpose may be used for this communication between the GPS-MS 20 and the network system 10.

Meanwhile, the DGPS correction data is broadcast on each cell's BCCH or another broadcast bearer. The DGPS broadcast data for each cell, such as the cell 18, is updated every thirty seconds or less by the BSC 14.

According to Jolley, these two procedures address the primary operational scenarios. However, a problem occurs when the orbital modeling information, particularly the navigation information, must be updated for all GPS-MS in a geographic region, for example, a cell. Apparently, this problem may be solved by parsing the updated information and adding it to unused portions of broadcast messages. In this manner, all GPS-MS in the cell 18 can receive the updated navigation data without having to occupy dedicated point-to-point channels 28 and other network resources, such as an MSC or BSC.

It must be pointed out that Jolley does not even suggest using *an alternative ranging source type*, such as a land-based wireless network, to monitor the integrity of the GPS. Jolley, in fact, relates to a method of broadcasting GPS correction data as opposed to a method of detecting a failure in a satellite.

Accordingly, claim 1, as amended, is not anticipated by Jolley. Insofar as claim 11, as amended, also includes that "at least one ranging source type comprises a satellite system and at least one ranging source type comprises a land-based wireless communication network," it is not anticipated by Jolley.

Claims 4 and 12 are separately patentable as well. These claims include performing failure isolation using the selected ranging measurements. This step is used to isolate the failed satellite, which exhibits a characteristic bias line that lies along the parity vector *p*. Jolley does not disclose this feature.

Conclusion

For the reasons detailed above, it is respectfully submitted all claims remaining in the application (Claims 1-16) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to telephone John S. Zanghi, at (216) 861-5582.

Respectfully submitted,

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4/25/07
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